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# Canadian High Arctic Research Station

## *Quarterly Report on Project Status and Expenditures: July 1 to December 31, 2016*



November 29, 2016 – 2 p.m. (photo by: Angulatlik Pedersen, Polar Knowledge Canada)



November 29, 2016 – 2 p.m. (photo by: Angulatlik Pedersen, Polar Knowledge Canada)

**December 31, 2016**

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## **Executive Summary**

This report details the status of construction and expenditures for the Canadian High Arctic Research Station (CHARS) project for the second and third quarters of 2016-2017 – the period between July 1 and December 31, 2016. Information on the scope, schedule and cost is included. This report responds to a June 2015 Treasury Board condition which states: “The Department of Indian Affairs and Northern Development report quarterly to the Treasury Board on project expenditures and status in addition to the current requirement for annual reports.”

As of December 2016, the overall construction status is:

- The two Triplex Accommodation Buildings are complete and in use by Polar Knowledge Canada;
- Substantial Completion of the Field and Maintenance Building is defined to be at least 98.9% of value of work is complete and the availability of the asset to be utilized for its intended purpose. This level of completion was expected in November 2016 but has been delayed. Deficiencies in the Field and Maintenance Building are being addressed. This delay has no costs to INAC associated with it, and utilization of the Field and Maintenance Building is still on track for April 1, 2017;
- Construction of the Main Research Building continues to advance and is currently scheduled for substantial completion in August 2017. The Main Research Building is enclosed and interior work is moving forward; and,
- The commissioning period for the campus is expected to be complete by March 31, 2018.

As of December 31, 2016, the 2016-2017 budget for CHARS is \$56,950,605 of which \$28,934,659 was spent to date, including expenditures in the amount of \$12,186,138 at the end of Q2 and \$14,084,380 at the end of Q3 2016-2017.

Public Services and Procurement Canada (PSPC) informed INAC that an audit of the CHARS project pursuant to terms and policies laid out by their department was being undertaken in Q2 2016-2017 (Annex A). INAC has requested additional information from Public Services and Procurement Canada.

Expenditures at the end of Q3 2016-2017 represent 51% of the overall 2016-2017 budget, recognizing the lag in invoicing between Public Services and Procurement Canada and INAC. Public Services and Procurement Canada have not signaled any issues and are still projecting the overall expenditures in their categories to remain on track for Q4 2016-2017.

## **Project Overview**

### **Introduction**

The Canadian High Arctic Research Station (CHARS) is currently in the final year of construction. While construction of the campus will end, activities related to the transfer of assets to Polar Knowledge Canada, the official opening and occupancy will be ramping up.

The scope and schedule objectives remain on-track based on the master schedule. Costs remain in-line with the overall projections from February 2016 when the Treasury Board submission was approved following a cost increase. The following are some of the key deliverables CHARS met during Q2 and Q3 2016-2017:

- Closing in the Main Research Building is complete and interior work is ongoing;
- Connection to the community high pressure waterline is underway;
- Interior work on the Field and Maintenance Building is nearly complete (deficiencies have been identified and are being addressed);
- Six leased housing units are completed and furnished; two houses are being utilized by Polar Knowledge Canada staff;
- Construction of the next 10 leased housing units is underway;
- Equipment, furniture and fleet procurement is on-going;
- Discussions with Shared Services Canada to implement the Information Technology systems are on-going;
- An interim operation and maintenance arrangement with the Construction Manager for the Triplexes and the Field and Maintenance Building was put in place for a period up to substantial completion of the Main Research Building (August 2017). The Assistant Deputy Minister Oversight Committee agreed to a call for proposals for the operations and maintenance of the campus post substantial completion (expected in August 2017) and prior to Polar Knowledge Canada taking over (March 31, 2019), aligning with the authorities INAC has for this project;
- Discussions with Polar Knowledge Canada on transition and long-term facilities management are underway;
- Discussions on an opening event related to Canada 150 began; and,
- Sealift 2016 arrived in Cambridge Bay in late August 2016.

The status, schedule and costs of key project components are further explained in the table below followed by a table of the project expenditures for these same components (Annex B), the project critical path (Annex C) and a visual update of construction (Annex D).

## Project Status (scope, schedule, cost)

Key Project Components	Activity	Activity Update	Status of overall completion	Scope	Schedule	Cost
Construction and fit-up	Triplexes	<p>Polar Knowledge Canada has taken occupancy of the triplex accommodation buildings.</p> <p>As part of normal commissioning and warranty processes, deficiencies are being identified and addressed through regular operations and maintenance.</p>				
	Field and Maintenance Building	<p>The pre-substantial completion inspection of the Field and Maintenance Building occurred early September 2016 resulting in the identification of a list of deficiencies that are currently being addressed.</p> <p>Substantial completion was not attained as planned in November 2016. The finishing of the floors on the second level was deficient and has to be redone, as well as addressing other issues.</p> <p>This work will not affect the completion of the campus.</p> <p>Equipment and furniture have been delivered to the site, but installation is delayed until the floors are completed.</p>				
	Main Research Building	<p>The Main Research Building is progressing on schedule. The building has been enclosed, and interior work (framing, drywall, electrical) is underway.</p> <p>Installation of sidings and solar panels on the exterior of the building took place over the summer months.</p>				



Key Project Components	Activity	Activity Update	Status of overall completion	Scope	Schedule	Cost
Procurement	Furniture and Equipment	<p>Furniture for the Field and Maintenance Building as well as for the first six leased housing units was procured through CORCAN<sup>1</sup>. Installation of the furniture in the leased housing units began at the end of Q2 2016-2017 and was completed in Q3 2016-2017.</p> <p>Polar Knowledge Canada has provided an updated list of specialized equipment to ensure alignment between the CHARS campus and their Science and Technology program. Lead time for the procurement processes of some items that Polar Knowledge Canada has yet to define could have an impact on the overall budget for this portion of the project. Work between INAC and Polar Knowledge Canada on defining these items is on-going.</p> <p>A new overall procurement strategy was implemented starting in Q2 2016-2017 to deal with the unsuccessful processes identified last fiscal year and in Q1 2016-2017. Vendors are now able to deliver goods to a warehouse in the South and INAC will ship to the North. Positive impacts of this approach are being felt in Q3 2016-2017.</p> <p>This item is under review (yellow) for scope, schedule</p>				

<sup>1</sup> CORCAN is a key rehabilitation program of the Correctional Service of Canada (CSC). It contributes to safe communities by providing offenders with employment and employability skills training while incarcerated in federal penitentiaries, and for brief periods of time, after they are released into the community. This is done through on-the-job and third-party certified vocational training that focuses on four business lines: Manufacturing; Textiles; Construction and Services.

Key Project Components	Activity	Activity Update	Status of overall completion	Scope	Schedule	Cost
		<p>and cost given the results of most of the requests for proposals will only be known in Q4 2016-2017.</p> <p>The following contracts were awarded in Q2-Q3 2016-2017:</p> <ul style="list-style-type: none"> <li>- Forklifts and Arctic accessories;</li> <li>- Miscellaneous Laboratory Equipment;</li> <li>- Miscellaneous Equipment for the Field and Maintenance Building.</li> </ul> <p>The following Request for Proposals were posted on BuyandSell in Q2 and Q3 2016-2017:</p> <ul style="list-style-type: none"> <li>- A Regional Master Standing Offer for laboratory consumables was posted for Nunavut for use by INAC, Polar Knowledge Canada and other departments;</li> <li>- Furniture for the next ten leased housing units;</li> <li>- Furniture for the Main Research Building;</li> <li>- Cryogenic Storage Containers;</li> <li>- Growth Chambers;</li> <li>- Electronic Testing Instruments;</li> <li>- Laboratory Refrigerators and Freezers;</li> <li>- Commercial Kitchen</li> <li>- Miscellaneous; and, Laboratory Equipment.</li> </ul>				
	Fleet vehicles	Three trucks procured in Q4 2015-2016 and one van procured in Q1 2016-2017 arrived in Cambridge Bay on				

Key Project Components	Activity	Activity Update	Status of overall completion	Scope	Schedule	Cost
		sealift 2016 (August 31, 2016).				
Operations and Maintenance	Investment Analysis Report  PricewaterhouseCoopers was awarded the contract for the report.  This report will provide various facilities management delivery models to support the determination of the best value-for-money solution for long term facilities operations and maintenance of the CHARS campus.	An initial face-to-face meeting was held in July 2016 with all stakeholders (INAC, Public Services and Procurement Canada, Polar Knowledge Canada) to launch the process for the Investment Analysis Report.  A site visit by PricewaterhouseCoopers took place in September 2016 to gather information and to provide a draft proposal for delivery models which is being reviewed and modified.				
	Interim and on-going contracts	An interim operation and maintenance arrangement with the Construction Manager for the Triplexes and the Field and Maintenance Building was put in place for a period up to substantial completion of the Main Research Building (August 2017).  The Assistant Deputy Minister Oversight Committee agreed to a call for proposals for the operations and maintenance of the campus post substantial completion (August 2017) and prior to Polar Knowledge Canada taking over (March 31, 2019).				

Key Project Components	Activity	Activity Update	Status of overall completion	Scope	Schedule	Cost
Information Technology Services	Information technology systems	<p>Discussions between INAC, Polar Knowledge Canada and Shared Services Canada are on-going at this time.</p> <p>Shared Services Canada has divided the work into two phases. Phase 1 would provide basic Internet connectivity to the Field and Maintenance Building while Phase 2 would provide the whole internet system to the campus.</p> <p>During the Canadian High Arctic Research Station Assistant Deputy Minister Oversight Committee meeting held in December 2016, Shared Services Canada signaled both phases would be delivered on scope and on schedule. Phase 1 by March 31 2017 and Phase 2 by summer 2017.</p> <p>The equipment procured for Phase 1 was promised by the vendor by mid-December but was not received.</p> <p>At the time of writing this report, Shared Services Canada is indicating they are exploring alternative options in order to minimize impacts to the delivery of Phase 1. This includes cutting out staging and testing prior to shipping materials to Cambridge Bay, thereby elevating the risk of faulty materials/systems.</p> <p>The delivery of Phase 2 is now under discussion with Shared Services Canada with regards to scope, budget and schedule.</p> <p>\$2,8M is set aside for the</p>				

Key Project Components	Activity	Activity Update	Status of overall completion	Scope	Schedule	Cost
		Information Technology system in 2016-2017. At the time of writing this report, Shared Services Canada has advised they will not invoice for the total amount as they will push some activities out to next fiscal year.				
	Satellite connectivity	<p>Satellite equipment was procured and modifications to base building infrastructure were completed. The satellite connection was installed and successfully tested in December 2016. Satellite connectivity was confirmed operational and then turned off to defer charges until Phase 1 Information Technology Commissioning in March 2017.</p> <p>The satellite will provide CHARS with the capability of high speed connectivity once the Shared Services Information Technology System is in place.</p> <p>The Satellite connectivity was managed through Shared Services Canada, but delivered by a third-party contractor – Telesat.</p>				
Leased Housing	Construction of leased housing unit	The construction of the last ten leased housing units began in March 2016 and is underway.				
	A total of 18 leased housing units will be made available by INAC to Polar Knowledge Canada.	The houses are expected to be completed by April 2017.				
Community Integration	Cambridge Bay waterline project	Support to the Government of Nunavut's water treatment plant upgrades was provided in Q3 2016-2017.				

Key Project Components	Activity	Activity Update	Status of overall completion	Scope	Schedule	Cost
		<p>A delay in completion of the work in August 2016 is due to pipes and connections that were broken during the on-site installation of the waterline.</p> <p>Replacement materials could not be sourced quickly enough to be delivered and installed before the ground froze.</p> <p>The materials were shipped, and will be installed in summer 2017.</p> <p>Temporary water tanks installed in the Field and Maintenance Building during construction in 2015-2016 will ensure this delay does not impact occupancy and use of the building.</p>				
	Power	INAC supported Quilliq Energy Corporation in 2016-2017 in increasing its generating capacity to meet the power demands of both the community and CHARS.				
	Sealift 2016	<p>Sealift 2016 delivered a significant amount of materials and equipment required to maintain the construction schedule and prepare for the operations of CHARS, including:</p> <ul style="list-style-type: none"> <li>• Fleet vehicles - one van and three trucks;</li> <li>• Construction materials and appliances for the next ten leased houses unit;</li> <li>• Construction materials required by the Construction Manager to complete the Main Research Building; and,</li> <li>• Consumables (such as</li> </ul>				

Key Project Components	Activity	Activity Update	Status of overall completion	Scope	Schedule	Cost
		<p>cleaning products, toilet paper, paper towels) for the Field and Maintenance Building.</p> <p>Under the Construction Manager contract, approximately 250 sea containers worth of materials for a value of approximately \$7.5M have arrived by searift in August 2016.</p>				
Meeting Nunavut Land Claims Agreement Obligations	Implementation of Inuit Benefits plans	<p>The <i>Nunavut Land Claims Agreement</i> obligations continue to be a priority consideration in the construction and related procurement for CHARS, including on the capital construction project, the purchasing of equipment and leased housing.</p> <p>The Construction Manager reported over 185,000 hours of Inuit employment worth over \$6,7M; Skills development activities worth \$0,2M were expended and \$51,5M worth of construction contracts were awarded to firms registered under Nunavut Tunngavik Inc.</p> <p>For projects being delivered by INAC through Public Services and Procurement Canada, the Inuit Benefits Plans have been successful.</p> <p>25 year leased housing units are currently being constructed in Cambridge Bay to meet the needs of future Polar Knowledge Canada staff. 84% of the actual design and construction contracts for the first six leased housing units were awarded to Inuit owned</p>				

Key Project Components	Activity	Activity Update	Status of overall completion	Scope	Schedule	Cost
		<p>firms. It is estimated that approximately 35% of the operations and maintenance contracts will also benefit Inuit owned firms.</p> <p>For the next ten leased housing units, it is expected that Inuit-owned firms will benefit from approximately 95% of the construction contracts and 82% of the operations and maintenance contracts.</p>				
Scope		Schedule	Cost			
Green	On scope	On schedule based on master schedule	Within current approved budget			
Yellow	Scope under review	Schedule under review	Budget under review			
Red	Scope needs to be modified	Schedule needs to be modified	Budget needs to be modified			

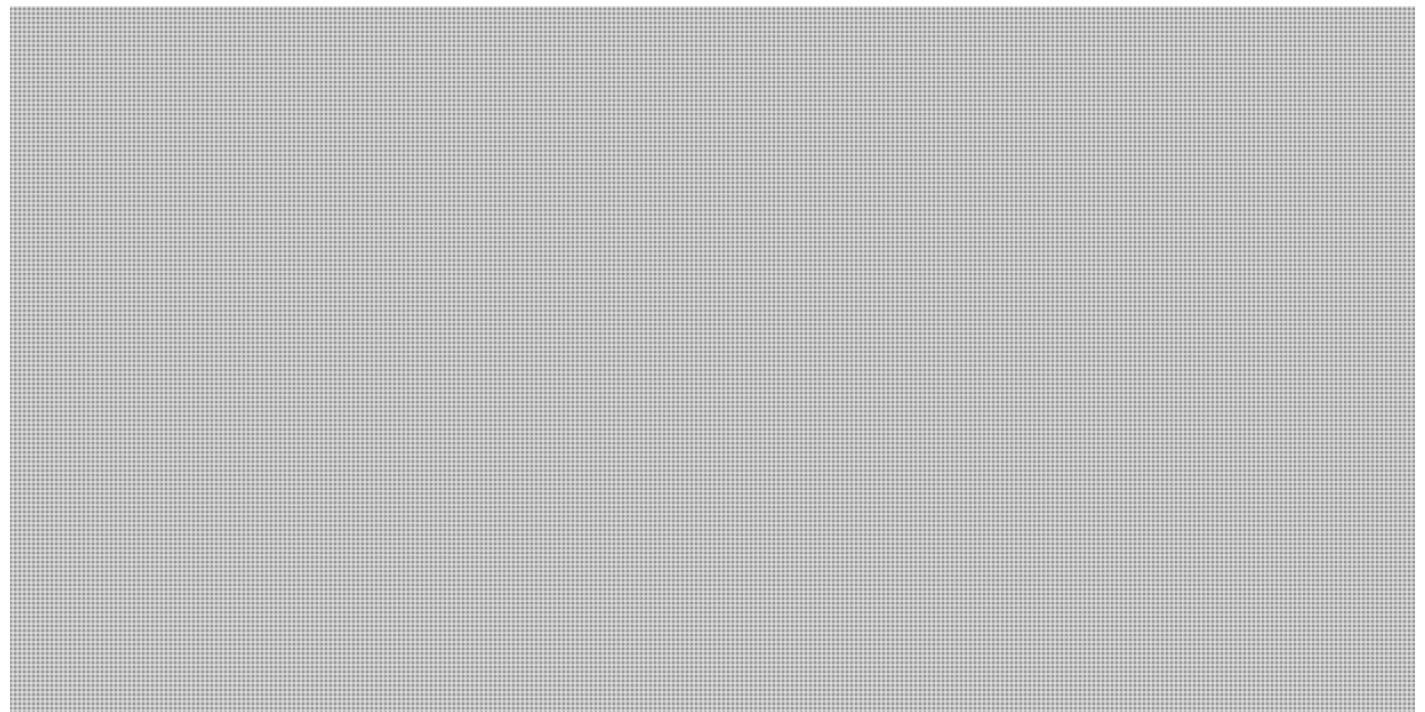


## **Issues**

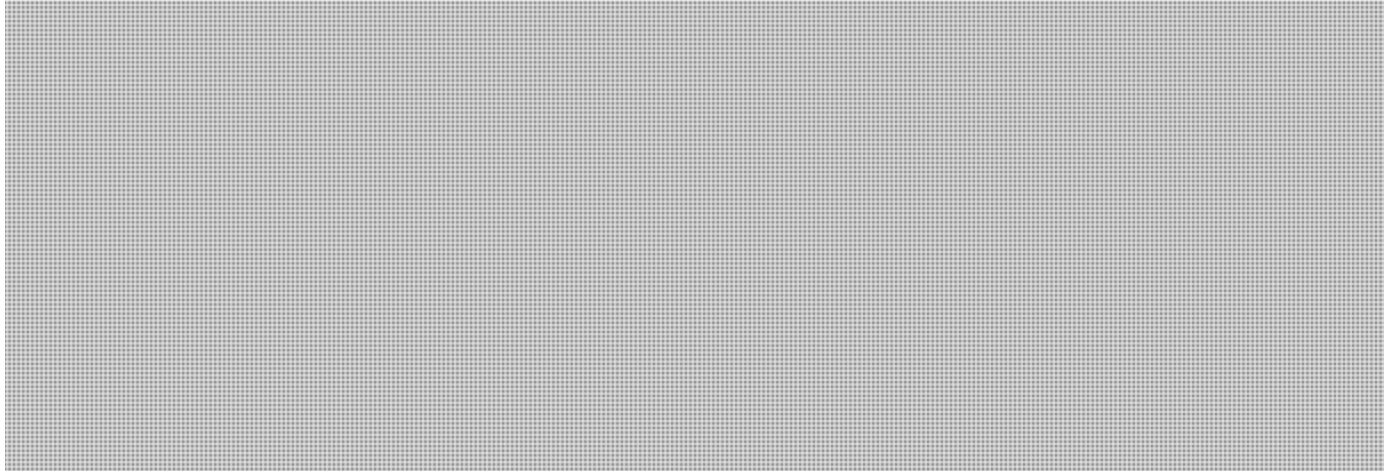
### **Operations and Maintenance**



### **Information Technology Services**



## **Conclusion**



## **Annex A - Public Services and Procurement Canada Audit of the Construction Manager for CHARS – Questions and Answers**

*"The Government of Canada is undertaking an audit of the CHARS project pursuant to terms and policies laid out by Public Services and Procurement Canada. As part of its normal operating practice, the contractor has put in place an interim construction manager while the audit is being undertaken. The audit is expected to be completed by early fall 2016."*

*"Work on the construction project will continue and the Government of Canada remains committed to completing the construction based on the current time lines."*

### **Q.1 Why is the audit being done at this time?**

Internal audits are undertaken as part of the regular process for projects like the Canadian High Arctic Research Station. This allows an assessment of the performance of the team and their ability to achieve project targets in the short and long-term.

### **Q.2 What is the subject of the audit?**

This is a financial and process audit as is normally conducted at the mid-way point of large projects.

### **Q.3 What effect will this action have on the Canadian High Arctic Research Station construction project?**

The audit will have no effect on the project.

### **Q.4 Will the audit affect the cost of the Canadian High Arctic Research Station construction project?**

There are no cost implications to the CHARS construction project.

### **Q.5 Will the schedule for the Canadian High Arctic Research Station construction project be affected by this audit?**

The project will continue to move ahead as per the Master schedule. The contractor has put in place an interim project manager.

### **Q.6 Will the findings of the audit be made public?**

The results of internal audits are not normally proactively disclosed.

### **Q.7. What will you do with the findings of the audit?**

Recommendations from the audit will be implemented as required. This may mean that more detailed evaluations are performed, better or different monitoring is put in place and planning measures are augmented with the Construction Manager.

## Annex B - Project Expenditures 2016-2017

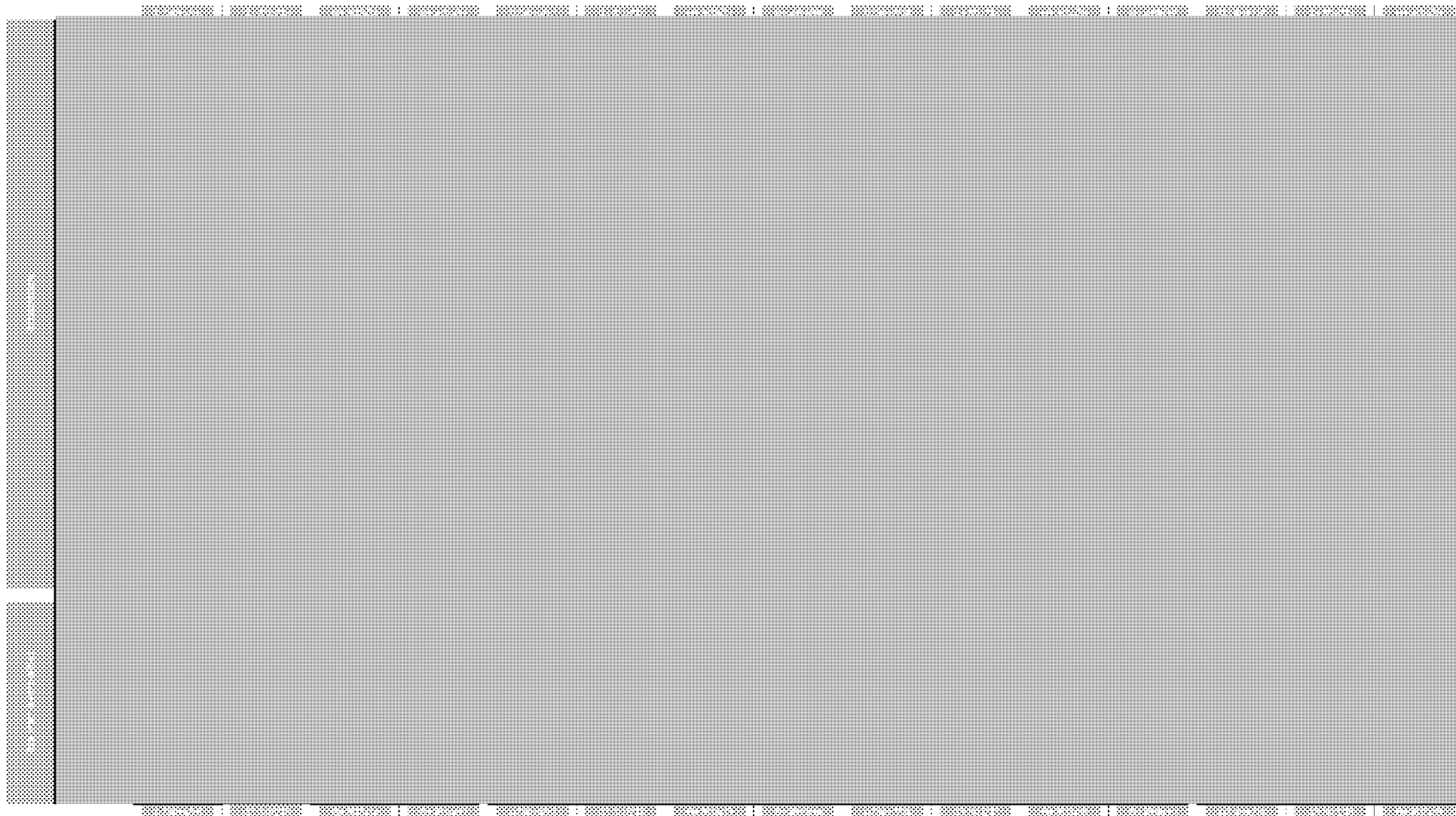
Category	Q1		Q2		Q3		Q4		2016-17 INAC Total Budget	2016-17 Year-to date INAC Expenditures	% of 2016-17 Expended (Note 2)	2016-17 Overall Status
	Budget (Note 1)	INAC Actual Expenditures	Budget (Note 1)	INAC Actual Expenditures (Note 2)	Budget (Note 1)	INAC Actual Expenditures	Budget (Note 1)	INAC Actual Expenditures				
<b>Vote 1</b>												
Equipment (Note 6)												
<b>Vote 5</b>												
Personnel - CHARS												
Other Operating Costs (Note 4)												
Community Integration												
Equipment (Note 6)												
SSC Agreements (Note 5)												
PSPC Fees												
Architectural and Engineering Fees												
CM - Total Contract												
CM - Construction (Note 7)												
CM - Advisory Services												
CM - Fee												
<b>Vote 10</b>												
Community Integration (Note 3)												
<b>Total</b>	\$ 13,545,504	\$ 2,664,141	\$ 16,415,798	\$ 12,186,138	\$ 8,257,669	\$ 14,084,380	\$ 18,731,634	\$ -	\$ 56,950,605	\$ 28,934,659	51%	

 On Target

 Continue to Monitor

 Attention Required

## Annex C - Critical Path




Milestone Legend:

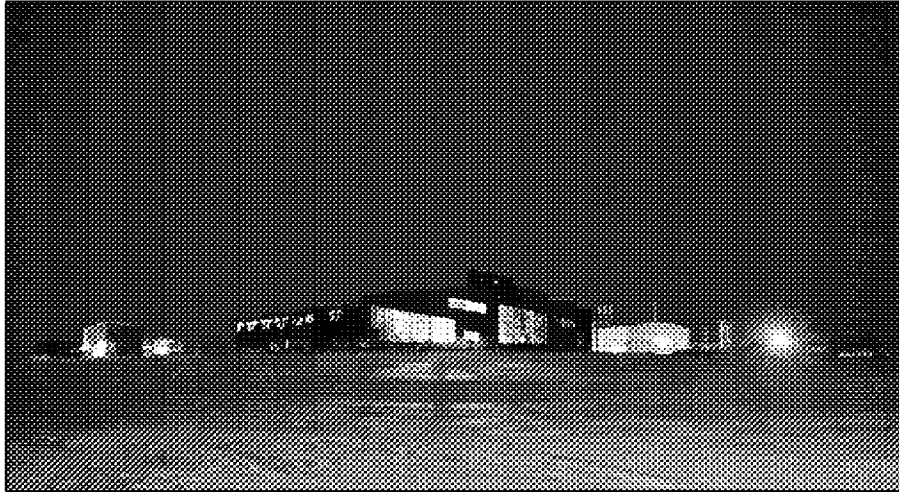
Planned 

Achieved 

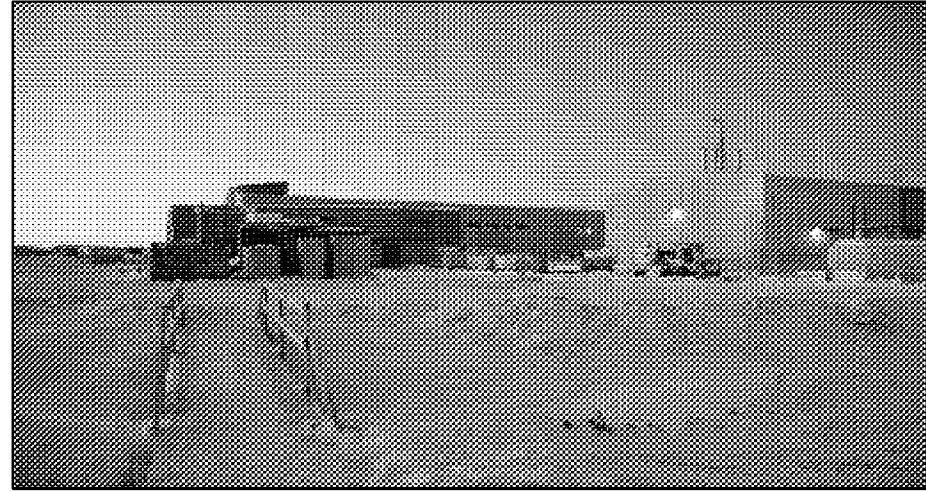
In Progress 

High Risk 

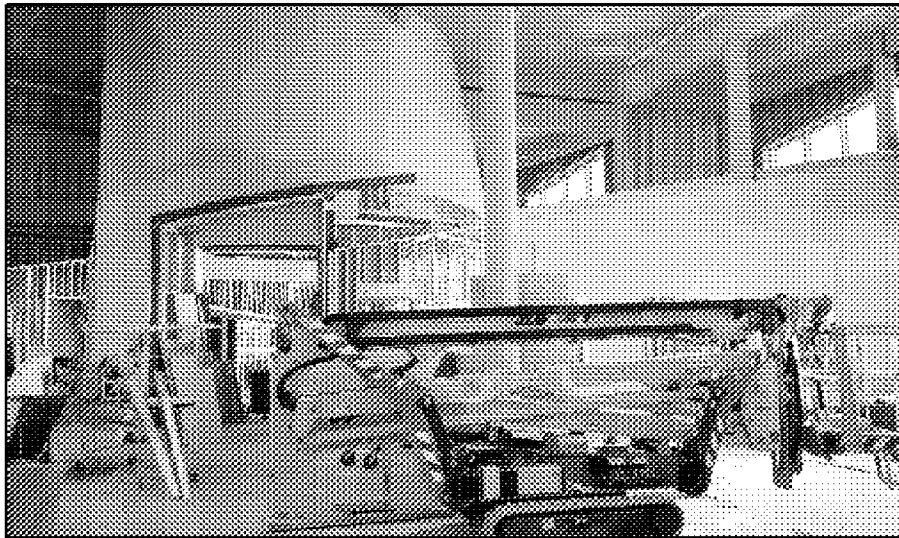
## Annex D - Status of Construction Q2 - Q3 2016-2017



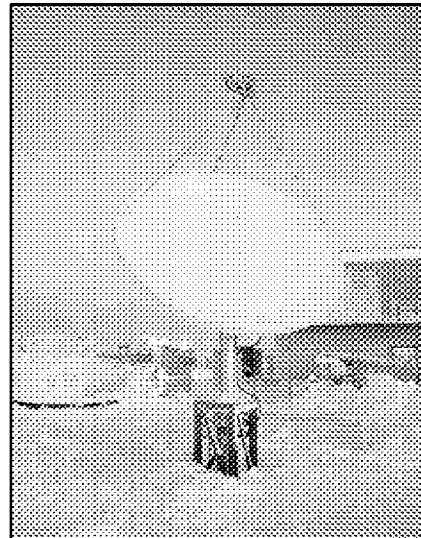
CHARS Campus – November 2016



CHARS Campus – December 2016



Knowledge Sharing Centre – December 2016



Satellite Earth Station Antenna – December 2016

